CLAIMS - LEADLESS

1. A solder pad, hereinafter referred to as pad, similar to those solder pads that are used to mount electrical or electronic components or devices, hereinafter referred to as device(s), onto substrates or printed circuit boards, hereinafter referred to as PCB(s), wherein

a) said pad is **formed in a certain shape**, so as to control the shape and cross-section of the solder connection or solder joint that will be formed on top of it, between said device pad and said PCB pad.

2. Pads, as in Claim 1, wherein

a) said pad on the PCB, hereinafter referred to as PCB pad, and its corresponding pad on the device, hereinafter referred to as device pad, both have a **similar shape**, to make a "**matched pair or a matched set of pads**".

3. Pads, as in Claim 1, wherein

a) said pad on the PCB (PCB pad) and its corresponding pad on the device (device pad), both are elongated, i.e. the pad length is larger than the pad width, in order to get the solder joint to have an elongated cross-section as well, i.e. the length of said joint cross-section would be larger than the width of said joint cross-section.

4. A pad, as in Claim 2, wherein

a) both said two pads of said **matched pair or a matched set** are **oriented in the same direction**, i.e. the long axis of said PCB pad is in the same direction as the long axis of said device pad, and similarly the short axis of said PCB pad is in the same direction as the short axis of said device pad.

5. A pad, as in Claim 3, wherein

a) said **short axis** of each one of said two pads is **in line with a thermal deformation ray**, which would start at the thermal center **or the fixation point** of said device and would emanate **towards the center of said pads**.

6. A pad, as in Claim 5, wherein

a) said **short axis** of each one of said two pads is **approximately in line with a ray**, which would start at the thermal center or the fixed point of the device and would emanate towards the center of said pad, and could be within a few degrees off from said ray.

7. A solder joint, joining pads on a PCB and pads on a device, wherein

a) said **joint** has an **elongated cross-section**, whereby one main axis of said cross section is longer than the second axis of said cross section, and whereby said long and said short axes are

approx. perpendicular to each other.

8. A solder joint as in claim 7, whereby

a) said solder **joint is oriented** such that said short axis of said joint cross section is **approximately in line with** the **thermal deformation** ray emanating from the **thermal center** of said device or from the **fixation point** of said device, and reaching towards the geometric center of said solder joint cross section.

9. A solder joint as in claim 7, whereby

a) said solder **joint** has an approximately uniform cross-section along its entire height, except at the bases where there may be a fillet, to look like a uniform cross-section solder column.

10. A solder joint as in claim 7, whereby

a) said solder **joint** has a **smaller** cross-section at about the **middle** of its height, than the cross-section near its bases, which are near the device pad or near the PCB pad.

11. A solder joint as in claim 7, whereby

a) said solder **joint** has a **smaller** cross-section at about the middle of its height, than the cross-section near its bases, which are near said device pad or near said PCB pad, i.e. like an **hour-glass shape or a Mae West shape**.

12. A Method of creating an assembly, where said assembly consists of a device attached to a PCB by a joining means, where said means is attached to joining pads on said device and said PCB, whereby

a) a **spacer** is introduced between said device and said PCB, to control the distance between said device and said PCB.

13. An assembly, as in claim 12, whereby

a) said spacer is a **part of said joining means**.

14. An assembly, as in claim 12, whereby

a) said spacer is **not a part** of said joining means.

15. An assembly, as in claim 12, whereby

a) said **spacer changes its size during the assembly process**.

16. An assembly, as in claim 15, whereby

a) said **change in size** of said spacer is **non-linear**.

17. An assembly, as in claim 15, whereby

a) said **change in size** of said spacer is **achieved through an external means**.

18. An assembly, as in claim 15, whereby

a) said **change in size** of said spacer is **achieved by controlling and changing its temperature during the assembly process**.

19. An assembly, as in claim 12, whereby

a) said **joining means is a solder joint**.

CLAIMS - LEADED

20. A leadframe blank, to be used in creating a leaded electronic package having more than one leg, whereby,

a) said **leadframe blank in its flat unfolded form**, has each leg blank, which will create the individual legs of said package, **oriented along its respective thermal deformation ray**, wherein each said ray starts at or near the **thermal center** of the said package, and emanates in the direction going **towards the geometric center of said leg column cross-section**, or towards the axis of said leg column, **after** said leg blank would have **been folded** to create said leg column into its working shape and position.

21. A leadframe blank, as in claim 20, whereby

b) said leg blank starts near the outline of said package in a direction that is normal to the sides or centerlines of said outline of said package and then, while said blank is still flat, said leg blank curves at its neck and then the subsequent portion of said leg blank continues in a direction of its respective thermal deformation ray, wherein said ray starts at or near the **thermal center** or fixation point of said package, and emanates in the direction going **towards the geometric center of said leg column cross-secti n**, or towards the axis of said leg column, **after** said leg blank would have **been folded** to create said leg column into its working shape and position.

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